REMARKS

The Office Action raised an issue on the Drawings which is believed to be addressed as follows.

The Office Action contended that Claims 1-4, 7-14, and 16-19 were rejected as being indefinite under 35 U.S.C. §112 for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regards to Claims 1 and 13, the "two identical optical fiber bands mounted with their front and back sides turned upside down in the holding body" is depicted in Figure 2. Each binding part mounting bore 35b holds a binding part 41. The holding body is capable of being mounted with four binding parts each holding an identical optical fiber band. The optical fiber bands are in a flat sheet form as shown in Figure 5. Each optical fiber band sheet has a front side, and a back side, as any flat sheet surface would have. The binding part 41 is located to deviate to either one of two directions with respect to the center line of the light irradiating part 21, and, therefore, enable two identical adjacent optical fiber band sheets to be mounted with their respective front and back sides turned relatively upside down in the holding body. (*Specification*, Page 11, Lines 14-24).

This configuration allows the adjacent bending parts of each optical fiber band sheet to be in different locations, thereby allowing optimal bending of the optical fiber band sheets so that a very compact configuration can be achieved, particularly when stacking the light emitting irradiating parts such as shown in Figure 2.

The present invention addresses the problem of uneven light focusing in line lighting systems when a single short focal distance lens is used. When a lens with a long focal length is used, capturing light rays is typically not a problem. However, the cost of manufacturing a line

lighting system increases as the lens size increases. When a lens with a short focal distance is used, it may be difficult to gather enough light rays to achieve a desired luminous intensity, which leads to unevenness of lighting. (*Specification*, Page 1, Line 26 – Page 2, Line 12). As a result, traditional line lighting systems utilize a number of different types of short focal distance lenses. However, this multiple lens design is costly and bulky.

Our present invention provides a line light irradiation device that is compact and utilizes a single type of rod lens that can improve light focusing efficiency while minimizing unevenness of lighting.

Our present invention enables two identical adjacent optical fiber bands in a sheet form to be mounted with their respective front and back sides turned relatively upside down in the holding body so that the location of the adjacent bending parts can be different, thereby enabling a very compact configuration to the line light irradiation device.

As can be readily appreciated from the cited art and the requirement of inspecting products such as printed circuit boards, this is a relatively crowded technological field. Numerous engineers and scientists are trying to provide the most economical light monitoring equipment and to improve performance.

> "Thus when differences that may appear technologically minor nonetheless have a practical impact, particularly in a crowded field, the decision-maker must consider the obviousness of the new structure in this light."
>
> *Continental Can Co. USA Inc. v. Monsanto Co.*, 20 U.S.P.Q. 2d. 1746, 1752 (Fed. Cir. 1991).

The Office Action raised an issue with regards to the formality of our Claims 9 and 13, which is believed to be addressed by our currently amended claims.

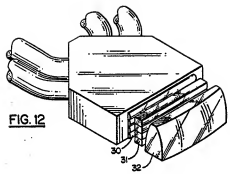
The Office Action further contended that Claims 1-4, 10, 11, 13, 16, 18, and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Conzola et al.* (US 5,185,638, hereinafter *Conzola*) in view of *Windross* (US 5,222,794).

Conzola is directed to a computer controlled illumination system providing an array of light above a work piece to match the focal point of a camera 24 as shown in Figure 9. A plurality of discreet glass fiber optical bundles was utilized with a circular input bundle face and a rectangular slit light emitting face. The fiber optic faces were arranged at a distance between the centers of adjacent lines corresponding to an angle of incidence of the emitted light.

With respect to amended Claims 1 and 13, *Conzola* does not disclose that "the multiple light emitting parts are of a same form." (*Specification*, Page 8, Lines 16-20).

In *Conzola*, two types of optical fiber bands having different forms are utilized. (*See Conzola*, Figures 11 and 12). Figures 11 and 12 of *Conzola* display one type of optical fiber band having a binding part utilized on the outside of the mechanical housing, and also display another type of optical fiber band having a binding part utilized on the inside of the mechanical housing. In contrast, all of the optical fiber bands of our invention have the same form, as only one type of optical fiber band is utilized. Therefore, our invention reduces the production cost per unit since only one type of optical fiber is required.

Furthermore, *Conzola* utilizes multiple lenses to emit light. The illumination collection system 19 in *Conzola* is split into two sections, the collimator lens array and the focusing lens. (*See* Col. 8, Lines 58-60). Figure 12 below of *Conzola* below displays the collimator lens array containing two cylindrical lenses 30 and 31, as well as a focusing lens 32. The first lens of the collimator 30 is a meniscus lens. *Conzola* uses two different types of lenses to emit light, and thus all of the light emitting parts of *Conzola* are not in the same form.



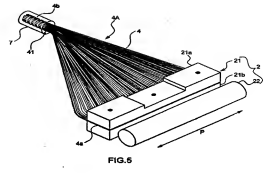


Figure 12 of *Conzola*

Figure 5 of present invention

In contrast, our invention standardizes the light emitting part by utilizing a single type of rod lens to emit light. Figure 5 above displays the single rod lens 22 of our invention. The rod lens 22 is a three-dimensional cylindrical column transparent body with a cross-section of a circular form, and arranged so that each center axis of the rod lens 22 locates on an optical axis face T of light irradiated from the light irradiating part 21. (*Specification*, Page 8, Lines 16-20). Therefore, the light emitting parts of our invention are all in the same rod lens form.

With respect to amended Claims 1 and 13, *Conzola* does not disclose that "the multiple light sources are arranged along the direction of the straight line on the holding body." (*Specification*, Page 4, Lines 18 – Page 5, Line 5).

The optical fiber bundles in *Conzola* are arranged with a specific angular placement within a mechanical housing in order to achieve desired angles of incident light. (*See* Col. 8, Lines 30-36). The four distinct fiber optic bundles 25 are fed to the fiber optic line converter 20. The fiber optic bundles remain in bundle form before being fed to the fiber optic line converter. (*Conzola*, Figure 10). The individual fibers are not separated and spread out along the line of the mechanical bracketing 28.

In contrast, our invention arranges the light sources "along the direction of the line on the holding body." The light sources are arranged along a direction of the line P and each light

source is located to deviate from the center line of the emitting part 2 in order to secure downsizing toward the direction of the thickness. (*Specification*, Page 11, Lines 6-24). This configuration allows each of the four optical fiber 4A to bend and be mounted two-by-two with their front and back sides turned upside down so that each light irradiating part 2 occupies little space within the holding body. (*Specification*, Page 12, Lines 6-12).

Furthermore, with respect to amended Claims 1 and 13, *Conzola* does not disclose that "portions of the multiple optical fibers between the light irradiating part and the binding part are formed as a sheet form." (*Specification*, Page 11, Lines 9-10).

The optical fibers in *Conzola* are formed as round fiber optic bundles. (*See* Fig. 10, Item 25). Each fiber optic bundle 25 has a 16mm diameter input face, is 55 inches long and has a 2 mm by 75 mm rectangular output face. (*Conzola*, Col. 8, Lines 24-26). At the light emitting face, the fiber optic bundles are in a rectangular slit form. (*Conzola*, Figure 11). The light emitting face of *Conzola* corresponds to the light irradiating part 21 of our invention. As can be seen in Figure 10 of *Conzola*, the fiber optic bundles are not formed in a sheet or flat form between the input faces of the fiber optic bundles and the light emitting face. Instead, the individual fiber optic lines are coupled together to form circular fiber optic bundles. Only at the light emitting face are the bundles formed into rectangular slits.

In contrast, our invention has optical fiber bands between the light irradiating parts and the binding parts that are formed in a sheet form. As discussed above, this sheet form allows the optical fiber bands to be bent in order to downsize the space utilized within the holding body.

The Office Action cites to *Windross* to supplement the deficiencies of *Conzola*.

Windross simply discloses a vehicle headlamp with a single lens that can fit within the space constraints of an automobile frame. (*Windross*, Col. 3, Lines 21-30). *Windross* utilizes a

single lens with multiple lens shapes. The beam pattern, such as high beam, low beam, fog light, etc. can be selected by rotating the lens so that then lens shape produces a desired beam pattern. (*Windross*, Col. 5, Lines 18-27).

The Office Action contended that it would have been obvious to modify *Conzola* with a teaching of the *Windross* "by varying the lengths of the fiber optics for the purpose of conserving space." (*Office Action*, Page 14). However, it is not obvious to modify *Conzola* with a teaching of *Windross* in order to achieve a line light irradiation device that is compact and utilizes a single rod lens that can improve light focusing efficiency while minimizing unevenness of lighting.

Conzola discloses an illumination system used in surface analyzers for highlighting defects on printed circuit boards. *Conzola* is useful in photocopy, microscopy, and facsimile arts where it is important to detect and characterize contrasts of images. (*Conzola*, Col. 1, Lines 15-19). *Conzola* provides a larger range of illumination angles and a higher level of irradiance than previous systems by utilizing multiple lenses for collecting light. (*Conzola*, Col. 3, Lines 31-33). Specifically, *Conzola* recites

> "A collimator contains a plurality of cylindrical lenses (each of which has curvature in only one axis)...The focusing/field coverage lens has two cylindrical surfaces, one surface perpendicular to fiber slit length and the other surface parallel to the fiber slit length (sagittal cylinder)...The sagittal cylinder bends the chief ray from each individual fiber to the center of the imaging lens entrance pupil" (*Conzola*, Col. 5, Lines 27-55).

Conzola does not aim to reduce the size of the illumination system, but aims to provide a sophisticated light detection system which captures an optimal amount of light through its multiple lenses. Thus, replacing the collimator lens array and the focusing lens in *Conzola* with the single cylindrical lens of *Windross* would interfere with the light capturing properties of *Conzola*.

Applicant submits that any combination of references that must be modified beyond their express functions is suggestive of an unintended use of hindsight that may have been utilized to drive the present rejection. This is particularly true for an examiner who is attempting to provide a diligent effort that only patentable subject matter occurs. The KSR Guidelines do not justify such an approach. There is still a requirement for the Examiner to step back from the zeal of the examination process and to appreciate that a Patent Examiner has to wear both hats of advocating a position relative to the prior art while at the same time objectively rendering in a judge-like manner a decision on the patentability of the present claims.

As set forth in MPEP 2142,

> To reach a proper determination under 35 U.S.C. §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

Our recent discussion with Pinchus Laufer in the Office of Patent Legal Administration, who was involved in writing the Examination Guidelines for Determining Obviousness under 35 USC §103 in view of the Supreme Court decision in *KSR International Co. vs. Teleflex, Inc.* verified that the *KSR* decision still required a specific rationale that could not be based on hindsight for purportedly combining the elements in the prior art to meet an invention defined in the patent claims.

Mr. Laufer incorporated the following from the existing MPEP into the Guidelines.

As noted in the MPEP at §2143.02:

> A rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.,* 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 (2007); *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282, 189 USPQ 449, 453 (1976); *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 62-63, 163 USPQ 673, 675 (1969); *Great Atlantic & P. Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152, 87 USPQ 303, 306 (1950). (underline added)

With respect to newly added Claim 20, *Conzola* does not disclose a line light irradiation device with two optical fiber bundles each formed by binding light introducing end portions of a plurality of optical fibers together in a cylindrical shape with a binding part and arranging light irradiating end portions of the plurality of optical fibers adjacent to each other and spread into a sheet form (Figure 5), the two optical fiber bundles are positioned parallel and adjacent to each other within a holding body (Figure 3), each respective binding part of the two optical fiber bundles is positioned off center with respect to a mutual center line of the respective light irradiating end portions of the two optical fiber bundles (Figure 3), each respective binding part of the two optical fiber bundles is positioned on an opposite side of the mutual center line with respect to the other optical fiber bundle (Figure 3), and the respective plurality of optical fibers of the two optical fiber bundles bend in opposite vertical directions and overlap with each other at a portion between the respective light introducing end portions and the respective light irradiating end portions of the two optical fiber bundles. (*Specification*, Page 11, Lines 6-24, Figure 3).

The Office Action concedes that *Conzola* fails to disclose "the binding part being located to deviate to either one of two directions with respect to the center line of the light irradiating part." (Office Action, Page 8). The Office Action cites to *Windross* to supplement the deficiency in *Conzola.*

Windross does not supplement this deficiency in *Conzola,* and does not disclose "each respective binding part of the two optical fiber bundles located to deviate to either one of two directions with respect to a mutual center line of the respective light irradiating end portions of the two optical fiber bundles." The vehicle headlight in *Windross* includes only a single bundle of optical fibers 14 configured in a splayed-out fashion having only a single binding part 12 as shown in Figure 1 of *Windross.* Thus, *Windross* does not disclose two fiber optic bundles each with a respective binding part.

Furthermore, with respect to Claim 20, *Conzola* does not disclose "means for focusing a line of light irradiated from each respective light irradiating end portion of the two optical fiber bundles consisting of a single type of three-dimensional cylindrical columnar lens with a cross-section of a circular form." (*Specification*, Page 8, Lines 16-20).

Conzola discloses using a meniscus lens 30 in the collimator lens array, as well as a standard columnar lens 31. (*See* Col. 8, Lines 61-64). A meniscus lens has one convex and one concave side, and can be either a converging or diverging lens. On the other hand, a standard columnar lens allows a beam of light to converge at a specific focal point. *Conzola* uses two different types of lens within its collimator lens array, as well as a separate focusing lens to converge the light.

Windross does not supplement this deficiency in *Conzola. Windross* discloses using a modified cylindrical lens 20' which has lens shapes 46 and 48 formed therein. (*See* Col. 5, Lines

18-22). The lens shapes 46 and 48 allow a beam pattern, such as a high beam or low beam to be selected simply by rotating the lens so that the beam of light is aligned with the desired lens shape. Thus, the lens 20' of *Windross* does not have a circular cross-section, as the lens 20' is modified with shapes 46 and 48 which do not provide a perfectly circular cross-section as seen in Figure 5 of *Windross*. (*See* Figure 5).

Neither *Conzola* nor *Windross* disclose multiple optical fiber sheets which bend or deviating in opposite directions within a holding body so that the sheets form a compact configuration, nor do they disclose means for focusing light consisting of a single type of columnar lens.

Applicants have defined the line light irradiating device as a means plus function element in newly added Claims 20 – 23 pursuant to 35 U.S.C §112, sixth paragraph and submit that neither cited reference can perform the functions define nor provide equivalent structures.

The MPEP §2182 states that "application of a prior art reference to a means or step plus function limitation requires that the prior art element perform the identical function specified in the claim. However, if a prior art reference teaches identity of function to that specified in a claim, then…an examiner carries the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function." The "means or step plus function" limitation should be interpreted in a manner consistent with the specification disclosure. See *In re Donaldson Co.,* 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994).

Dependent Claims 2-4 and 7-12 depend from Claim 1, dependent Claims 14 and 16-19 depend from Claim 13, and newly added dependent Claims 21-22 depend from Claim 20. The

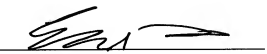
dependent claims add features that more particularly define the invention and further distinguish over the cited references and prior art of record.

In view of the amendment to the present claims, it is believed that the case is now in condition for allowance and an early notification of the same is requested.

If the Examiner believes that a telephone interview will help in the prosecution of this matter, the undersigned attorney can be contacted at the listed phone number.

Very truly yours,

SNELL & WILMER L.L.P.



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